



United States
Environmental Protection
Agency

Air and Radiation
(6608J)

EPA 402-R-03-001
December 2004

Implementation of the Waste Isolation Pilot Plant Land Withdrawal Act

FY 2003 Report to Congress

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I. EXECUTIVE SUMMARY

On May 13, 1998, the U.S. Environmental Protection Agency (EPA or the Agency) certified that the Waste Isolation Pilot Plant (WIPP) can safely contain transuranic (TRU) radioactive waste and complies with EPA's radioactive waste disposal standards. On March 26, 1999, the WIPP facility began receiving radioactive waste. WIPP is the nation's first geologic facility designed for permanent disposal of TRU radioactive waste that was generated as a result of U.S. defense-related activities.

EPA has an ongoing oversight role at the WIPP to verify independently that it continues to protect public health and the environment by ensuring that the Department of Energy (DOE) maintains and operates the facility in a safe manner and that the facility continues to comply with our radioactive waste disposal standards. EPA's main oversight activities include:

- Conducting audits and inspections;
- Evaluating changes in the WIPP's activities; and
- Recertifying the safety of the WIPP.

As of Summer 2003, EPA approved five waste generator sites to ship waste to the WIPP for disposal: (1) Los Alamos National Laboratories (LANL) in New Mexico, (2) Rocky Flats Environmental Technology Site (RFETS) in Colorado, (3) Idaho National Engineering and Environmental Laboratory (INEEL), (4) Hanford Site in Washington, and (5) Savannah River Site (SRS) in South Carolina. In addition, SRS Argonne National Laboratory-East (ANL-E), and the Nevada Test Site (NTS) were approved to ship waste to the WIPP via the Central Characterization Project (CCP), which was established by DOE to augment the ability of TRU waste sites to characterize and certify the waste in accordance with EPA's WIPP Compliance Criteria. These sites may ship TRU waste that is characterized using only EPA-approved processes.

Listed are the highlights from EPA's WIPP program for Fiscal Year (FY) 2003:

- In October 2002, performed an audit of the Quality Assurance (QA) program of LANL and determined that it was properly maintained.
- In November 2002, performed an audit of the QA program of SRS and determined that it was properly maintained.
- In January 2003, performed an audit of the QA program of DOE's Carlsbad Field Office (CBFO) and determined to expand the audit sample with a follow-up audit.

- In February 2003, performed a follow-up audit of CBFO's QA program and determined that it had been properly maintained.
- In February 2003, inspected the waste characterization (WC) processes of Argonne National Laboratory-East (ANL-E) CCP and approved processes to characterize both debris and solid waste.
- In March 2003, inspected RFETS for continued compliance in the characterization of debris waste and determined that the site continued to comply with EPA regulations in the areas inspected.
- In March 2003, inspected the WC processes by the CCP at the SRS and approved new processes used to characterize debris waste.
- In June 2003, inspected the WIPP site and verified compliance with the monitoring and waste emplacement requirements of the certification, and with Subpart A requirements of 40 CFR Part 191.
- In June 2003, completed a detailed technical review of WIPP performance assessment parameter and computer codes in preparation for recertification.
- In March 2003, performed an audit of the RFETS' QA program and determined that it was properly maintained.
- In May 2003, performed an audit of SNL's QA program and determined that two previous concerns were resolved.
- In June 2003, performed an audit of the QA program of the Hanford Site and determined that it was not properly maintained. EPA's audit team determined that Hanford's management had not provided its QA organization with sufficient authority and resources to properly verify the quality of TRU WC activities. WIPP waste shipments were restricted by EPA and DOE.
- In July 2003, performed a follow-up audit of the Hanford Site's QA program and determined that Hanford had corrected the deficiencies. Restrictions on waste shipments were lifted.
- In August 2003, completed evaluation of DOE's FY 2002 Annual Change Report and notified DOE that the changes to the WIPP program were not significant and did not require a modification, suspension, or revocation of the WIPP Certification Decision.
- In August 2003, performed an audit of the Washington TRU Solutions (WTS) QA

program and determined that WTS has properly maintained its QA program.

- In August 2003, performed an audit of the QA program of the Advanced Mixed Waste Treatment Plant (AMWTP) and determined that the AMWTP's QA program is adequate.
- In September 2003, performed a second follow-up audit of the Hanford Site's QA program and determined that Hanford had maintained the correction of the deficiencies and has adequately assessed the impact of the deficiency on affected WC data.
- Informed the public of EPA's ongoing oversight activities of the WIPP through four public dockets in New Mexico and Washington, DC, a toll-free information line, a WIPP web page, and a periodic newsletter.
- Held four technical meetings throughout the year with DOE to discuss potential program changes, mainly focusing on recertification preparation and related activities.
- Provided oversight and technical assistance to the State of New Mexico in implementing the Resource Conservation and Recovery Act (RCRA) permit for the WIPP.
- In FY 2003, EPA funded 10 in-house staff positions at EPA Headquarters and EPA's Region 6 office in Dallas, TX and obligated contract dollars in the amount of approximately \$675,100 to fulfill our responsibilities under the WIPP LWA.

II. INTRODUCTION

With this report the U.S. Environmental Protection Agency (EPA or the Agency) complies with the requirement in Section 23(a)(2) of the Waste Isolation Pilot Plant Land Withdrawal Act, Pub. L. No. 102-579 (the Act or LWA), which requires EPA to submit an annual report to the Congress "on the status of, and resources required for the fulfillment of the Administrator's responsibilities under this Act."

The Act, as amended in 1996, gives EPA the authority to oversee many of the Department of Energy's (DOE) activities at Waste Isolation Pilot Plant (WIPP) throughout the facility's operational and decommissioning phases. The WIPP, located in southeastern New Mexico, is operated by DOE as a long-term geologic disposal facility for transuranic (TRU) radioactive waste. TRU waste is long-lived radioactive waste generated as by-products from nuclear weapons production and decommissioning.

The Act requires EPA to take the following regulatory actions:

- Issue Radioactive Waste Disposal Standards
Develop environmental radiation protection standards for the disposal of spent nuclear fuel, high-level waste and TRU radioactive waste, which will apply to all potential disposal sites except the site identified by Section 113(a) of the Nuclear Waste Policy Act, as amended (completed 09/19/1985, 40 CFR Part 191).
- Develop Compliance Criteria
Establish criteria to determine whether the WIPP will comply with the Agency's radioactive waste disposal regulations (completed 02/01/1986, 40 CFR Part 194).
- Conduct a Compliance Certification
Certify by rulemaking whether or not the WIPP complies with the Agency's radioactive waste disposal regulations (completed 05/18/1998, 63 FR 27354).
- Recertify Periodically
Determine every five years whether or not the WIPP facility continues to be in compliance with the Agency's radioactive waste disposal regulations (recertification process due to begin by March 2004).

In addition to these regulatory actions, EPA must determine whether documentation submitted by DOE pursuant to Section 9(a)(2) of the Act demonstrates continued compliance with environmental laws, regulations, and permit requirements as described in Section 9(a)(1) of the Act.

This report summarizes EPA's activities during FY 2003 (October 1, 2002 - September 30, 2003) to fulfill its responsibilities under the WIPP LWA and to provide independent regulatory oversight of the disposal of radioactive waste at the WIPP. Beginning in 1992 with the passage of the WIPP LWA, EPA has submitted such reports to Congress each year. For a description of EPA's WIPP activities and accomplishments prior to FY 2004, please refer to these previous reports.

III. EPA's WIPP Regulatory and Oversight Activities

A. Management

The Office of Radiation and Indoor Air (ORIA), which is in the Office of Air and Radiation (OAR), is charged with the primary responsibility for implementing the Act and ensuring that EPA's oversight responsibilities are performed in a timely and scientifically credible manner. Other EPA offices with significant roles are the Office of General Counsel (OGC) and EPA Region 6. Region 6, together with the State of New Mexico, regulates the WIPP's compliance with the Resource Conservation and Recovery Act (RCRA). Region 6 also oversees DOE's demonstration of compliance with all other applicable Federal environmental laws.

Within ORIA, the Center for Federal Regulations in the Radiation Protection Division (RPD) executes most of EPA's responsibilities under the Act. RPD's Outreach Team leads EPA's WIPP public outreach efforts. Staff-level implementation of the Act is coordinated through an intra-agency work group established by RPD.

B. Resources

The Act authorized DOE to transfer funds appropriated for environmental restoration and waste management to the EPA through the year 2001 for fulfilling the responsibilities of the Administrator under the Act. Since 2001, DOE, although not required, has transferred multi-year funds to EPA through interagency agreements (IAG) to support its oversight of the WIPP. In FY 2002, under the current IAG, DOE provided funds to support travel for EPA's continuing regulatory oversight of the WIPP for the next ten years, including conducting quality assurance (QA) and waste characterization (WC) inspections and attending various WIPP-related technical meetings. The resources required to fulfill EPA's responsibilities under the Act are highly dependent on DOE's schedule and can fluctuate greatly from year to year because of the number of sites requiring inspection each year, changes DOE proposes to make to the WIPP, and the required recertification every five years.

C. Continuing Compliance

In 1998, EPA certified that the WIPP will comply with 40 CFR Part 191 and 40 CFR Part 194, thus allowing the opening and operation of the WIPP. EPA continues to monitor the WIPP's compliance with EPA's radioactive waste disposal standards. This oversight includes conducting audits and site inspections, reviewing annual change reports, and determining every five years if the WIPP should be recertified.

Recertification

EPA began preparations to conduct the first "recertification" of the WIPP to evaluate the WIPP's continued compliance with the compliance criteria and disposal regulations. Under the LWA, DOE must submit documentation of continued compliance no later than March 2004, five years after initial receipt of waste at the WIPP. Documentation submitted by DOE will be made available in EPA's dockets, and there will be a public comment period on this material. The Agency will conduct the recertification evaluation based on the results of our continuous oversight of the WIPP, on complete documentation provided by DOE, and on public input. The Agency's decision on recertification will be announced in the *Federal Register*. EPA must issue its decision on recertification no more than six months after the Agency determines that DOE's recertification application is complete. EPA will conduct recertifications every five years until the end of the decommissioning phase.

The Agency worked with DOE to develop a strategy for completion of recertification. In December 2000, EPA sent DOE the "Guidance to the U.S. Department of Energy on Preparation for Recertification of the WIPP with 40 CFR Parts 191 and 194." The recertification guidance addressed four topics: (1) Content of the recertification application; (2) Documentation and format requirements; (3) Recertification time-frame and evaluation process; and (4) Change reporting and modification. EPA placed this guidance in our public docket and distributed it to key stakeholders who will be involved in recertification.

In 2003, EPA initiated a number of technical and detailed review meetings with DOE to discuss changes related to the original certification that may need to be included or updated as part of the upcoming recertification process. Based on these interactions, EPA sent a number of guidance letters to DOE outlining the Agency's expectations and issues that need to be addressed during the recertification process.

Change Reports

EPA requires at 40 CFR Part 194.4(b)(4) that DOE report any planned or unplanned changes in activities or conditions on which EPA's Compliance Certification decision was based. EPA provided DOE with reporting guidance on September 30, 1998, and placed it in EPA's public dockets. EPA reviews information about the changes and determines whether the initial certification should be modified, suspended, or revoked. Sometimes, DOE makes changes to their activities to make improvements or increase efficiency. In many cases, these changes are insignificant. The Agency may ask for public comment to assist in its review. Records of changes to WIPP that EPA has reviewed since 1998 have been placed in the public dockets.

DOE submitted its 2002 report to EPA on November 19, 2002. EPA reviewed this report and requested additional information. EPA notified DOE on August 8, 2003, that

the changes did not require a modification, suspension, or revocation of EPA's certification decision. Most of the changes described in the report were associated with modifications to written plans and procedures, required monitoring activities, and upcoming changes that DOE was considering. We also approved a change in the reporting dates. Future annual change reports will cover changes from July 1 through June 30 to allow for additional time to compile the report and for the inclusion of more detailed information and analyses.

Quality Assurance Audits

EPA requires DOE (40 CFR Part 194.22) to establish and implement a QA program for all items and activities that are important to the containment of TRU waste in the disposal system. DOE's QA program must implement the applicable requirements of specific Nuclear Quality Assurance (NQA) standards issued by the American Society of Mechanical Engineers (ASME). QA is a process for DOE to independently verify the reliability of items and activities, such as technical data and analyses, that are important to the long-term containment of TRU waste.

The Agency verified that DOE established these QA requirements in the Quality Assurance Program Document (QAPD) included in the Compliance Certification Application for the WIPP. The QAPD is the documented QA plan for the WIPP project, as a whole, to comply with the NQA requirements. The QAPD is maintained by the QA organization of DOE's Carlsbad Field Office (CBFO), which has the authority to audit all other organizations associated with TRU-waste disposal at the WIPP to ensure that their lower-tier quality assurance programs establish and implement the applicable requirements of the QAPD. The other DOE organizations such as the generator sites, which characterize waste for disposal in the WIPP, must have site-specific QA plans.

Once EPA has approved the QA program of a particular site, the Agency audits it on an annual basis to verify that the program is properly maintained. In 2003, EPA completed QA audits at the five major waste generator sites that are approved to ship waste to the WIPP and found that four were properly maintaining their QA programs for WC.

During audits conducted in June and July 2003, EPA found that Hanford's management had not provided its QA organization with sufficient authority, nor sufficient independence from cost and schedule considerations to properly verify that waste characterization activities have been correctly performed. EPA temporarily restricted Hanford waste characterized between February 1, 2003, and July 31, 2003, from shipment to WIPP without explicit approval by EPA.

During follow-up audits conducted in July and September 2003, EPA found that Hanford's management increased the QA organization's authority and organizational freedom. At that time, EPA lifted the restrictions on TRU waste characterized using EPA-

approved WC processes between February 1, 2003, and July 31, 2003, and Hanford could ship to WIPP without any further notification or approval from EPA.

EPA also annually audits DOE's QA program at CBFO and the WIPP site. In FY 2003, EPA performed an independent audit of CBFO's QA program and found that DOE continues to adhere properly to a QA program that implements the NQA standards. EPA found that the QAPD continues to be in conformance with the NQA requirements and that DOE's QA organization properly performs internal audits and surveillance.

Site Inspections

EPA's final WIPP certification included the conditions that DOE waste generator sites may not ship waste to the WIPP until EPA approves: 1) the site's QA program for TRU WC activities and assumptions; and 2) the TRU WC processes used at the site. Notices announcing EPA inspections or audits specific to the implementation are published in the *Federal Register*. EPA provides an opportunity for the public to submit written comments, for at least 30 days, on the WC and QA program plans submitted by DOE. These documents are placed in EPA's dockets in Washington, DC, and New Mexico. EPA's decisions on whether to approve waste generator site QA programs and WC systems are conveyed by letter to DOE and placed in the public dockets. EPA considers all comments regarding these inspections and does not make a final approval determination until the comment period has closed.

There are approximately 20 major sites across the country that store TRU waste. CBFO determines which sites are eligible to ship waste to the WIPP and audits them for compliance with DOE requirements. As CBFO certifies each site, EPA inspects the site to determine whether it also meets EPA's certification requirements.

As of Summer 2003, EPA approved five major waste generator sites to ship waste to the WIPP: (1) Los Alamos National Laboratories in New Mexico, (2) Rocky Flats Environmental Technology Site (RFETS) in Colorado, (3) Idaho National Engineering and Environmental Laboratory (INEEL), (4) Hanford Site in Washington, and (5) Savannah River Site (SRS) in South Carolina. In addition, the approval of the Central Characterization Project (CCP) was issued to characterize SRS, Argonne National Laboratory-East (ANL-E) and Nevada Test Site (NTS) TRU waste to augment the sites' ability to characterize certain waste in an expeditious manner. These sites may ship TRU waste that is characterized using only EPA-approved processes.

In FY 2003, EPA expanded the approval of waste and appropriate WC processes that can be used to characterize waste emplaced at the WIPP at SRS, LANL, INEEL, RFETS and Hanford. The Agency will continue to inspect additional WC processes at these and other TRU waste sites as they come on-line. In addition, EPA will continue to conduct annual inspections of the WIPP site to ensure waste monitoring and emplacement activities are in compliance with the certification, as well as with 40 CFR Part 191, Subpart

A requirements dealing with waste storage and management.

D. Alternative Provisions in the WIPP Compliance Criteria

The Compliance Criteria in 40 CFR Part 194.6, Alternative Provisions, allow the Administrator to revise the criteria, and establish the process to do so. Such revisions (called “alternative provisions”) must be made in accordance with the notice-and-comment rulemaking process under the Administrative Procedures Act (5 U.S.C. 553). The process includes: a *Federal Register* notice describing how the alternative provisions comport with the disposal regulations; the reasons why the existing provisions appear inappropriate, and the costs, risks, and benefits of compliance in accordance with the alternative provisions; a 120-day comment period; public hearings in New Mexico; and a final rule published in the *Federal Register*.

Since EPA’s initial certification in 1998, EPA has conducted dozens of independent technical reviews, inspections of the WIPP facility, and inspections of the DOE’s TRU waste generator sites around the United States to verify compliance with our WIPP disposal regulations. Based on this experience, EPA has determined that certain sections in the Compliance Criteria related to inspections of TRU waste generator sites should be revised. The Agency wants to apply experience regulating the waste generator sites to improve the Compliance Criteria, maintaining equivalent regulatory controls, and focusing resources where they may be most effective.

Following the process established in 40 CFR Part 194.6, EPA proposed the following alternative provisions:

- change the WC program approval procedures to increase EPA’s efficiency with inspection priorities, scheduling and resources;
- enhance the public participation process by allowing public comment on EPA’s proposed approval of WC programs;
- add a streamlined process to allow the Administrator to make minor revisions to the Compliance Criteria in a timely fashion;
- allow DOE to submit compliance applications and reference materials in alternative (non-paper) format; and
- make other minor changes to the criteria for consistency with the changes listed above.

EPA published the proposed alternative revisions in the *Federal Register* on August 9, 2002. After responding to comments, EPA plans to issue the final revisions in

the *Federal Register* in July 2004.

E. 40 CFR Part 191, Subpart A: Standards for the Management and Storage of Spent Nuclear Fuel, High-Level and Transuranic Waste

Subpart A of 40 CFR Part 191 contains EPA's environmental standards for the management and storage of spent fuel, high-level and TRU waste at disposal facilities operated by DOE. For the WIPP, these standards apply to activities during the operational period of the facility, including when waste arrives at the above-ground portion of the WIPP, is unloaded and prepared for emplacement in the underground repository, and is lowered down the shaft and emplaced in the underground disposal rooms.

To implement Subpart A, EPA and DOE are following EPA's WIPP Subpart A guidance, issued in January 1997, which interprets the standard specifically for the WIPP. (See 62 FR 9188.) As recommended by this guidance document, DOE notified EPA when initial startup of the WIPP was expected. In March 1999, prior to start-up occurring, EPA performed an on-site inspection of the WIPP to verify DOE's start-up readiness and its ability to capture, measure, and calculate any potential releases during waste disposal operations. EPA inspections found that the WIPP was ready to receive waste and that DOE was able to monitor compliance with Subpart A. Thereafter, EPA has performed Subpart A inspections on an annual basis.

In June 2002, EPA performed a Subpart A inspection to verify DOE's continued compliance with the Subpart A requirements. The inspectors found that DOE, through its contractor Washington TRU Solutions, had an effective radiation sampling program, calculated doses estimates adequately, and that the procedures and documentation were technically adequate.

In the future, DOE will continue to monitor the WIPP facility to detect any potential releases of radioactive materials. If any releases occur and cause radiation doses exceeding the Subpart A limits, then DOE will implement a "remedial plan" and submit monthly reports to EPA. Otherwise, DOE will report on compliance with Subpart A as part of the Biennial Environmental Compliance Report (BECR).

F. Compliance with the Resource Conservation and Recovery Act

Substantial portions of the wastes proposed for disposal at the WIPP are mixed waste, which contain both hazardous waste subject to the RCRA and radioactive waste subject to the Atomic Energy Act (AEA). WIPP, therefore, must also comply with regulations developed under RCRA. This section describes EPA's implementation of RCRA requirements.

EPA authorized the State of New Mexico to carry out the State's base RCRA program and the State's mixed waste program in lieu of the respective Federal programs. Therefore, the State issued and implements the RCRA permit for the WIPP. EPA's Region 6 office provides oversight and technical assistance to the State in implementing this permit.

Under the permit, the State of New Mexico audits the DOE inspections of the generator sites contributing waste to the WIPP. The State approves each site that demonstrates adequate compliance with the requirements in the permit and monitors DOE's audit program and documentation.

G. Compliance With Other Federal Environmental Laws

The LWA requires DOE to submit documentation to EPA – and, where applicable, the State of New Mexico – every two years to demonstrate the WIPP's compliance with all applicable Federal environmental laws, regulations, and permit requirements, including: the radioactive waste management and storage regulations (40 CFR Part 191, Subpart A); the Clean Air Act; the Toxic Substances Control Act; the Comprehensive Environmental Response, Compensation, and Liability Act; the Solid Waste Disposal Act; and the Safe Drinking Water Act. This documentation must be submitted throughout the disposal and decommissioning phases of the WIPP. DOE provides this information to EPA in its "Biennial Environmental Compliance Report (BECR)." EPA (and, where applicable, the State of New Mexico) must make a determination of compliance with these statutes, regulations, and permit requirements within six months of receiving DOE's BECR. If EPA determines that the WIPP does not comply with any applicable Federal law, regulation or permit requirement, the Agency will require DOE to develop a remedial plan within six months of this determination.

The BECR for 2000-2002 was submitted to EPA on October 31, 2002. EPA reviewed the BECR, confirmed compliance for the applicable reporting period and issued a letter to DOE on May 9, 2003 (68 FR 25032).

IV. COMMUNICATION AND CONSULTATION ACTIVITIES

EPA continues to inform interested parties about its WIPP oversight functions and encourage public participation in the Agency's oversight role and activities.

In August 2003, members of EPA's WIPP staff traveled to Albuquerque and Santa Fe, New Mexico to meet with representatives of WIPP stakeholder organizations to discuss plans for a variety of technical issues regarding the WIPP. Most of the discussions focused on the recertification decision to be issued in 2004. EPA also briefed participants about the Agency's Final Rule regarding the Alternative Provisions to the Compliance Criteria for the WIPP. The topics of interest to these stakeholder groups included: the acceptability of certain program changes being considered by DOE; assuring the public received balanced information about technical issues (i.e., remote-handled waste) before EPA reaches its recertification decision; and more frequent meetings with EPA staff during the recertification process.

EPA's toll-free WIPP Information Line (800-331-WIPP) currently receives about 25 calls each month. The Information Line provides up-to-date, recorded information about public hearings and meetings, publications, and other WIPP activities. Callers listen to recorded messages, add their name to the WIPP mailing list, request a WIPP publication, or leave a question for EPA staff.

In an ongoing effort to keep the public well-informed, EPA regularly places all pertinent information about the WIPP in the official docket at EPA Headquarters in Washington, DC and informational dockets located in Carlsbad, Albuquerque, and Santa Fe, New Mexico. Updated information can also be found at EPA's WIPP Web Site at: www.epa.gov/radiation/wipp. EPA publishes Fact Sheets on the Agency's continuing regulation of the WIPP, and a periodic newsletter, the *EPA WIPP Bulletin*, which informs the public about EPA's continuing role and activities. For FY 2003, EPA issued a WIPP Bulletin in the winter. They were sent to members of our WIPP mailing list, which currently has over 2000 subscribers.